REMARKS

In accordance with the foregoing, the specification has been amended to improve form and provide improved correlation with the drawings and claims. Replacement sheets for FIGs. 2 and 3 are included herein to overcome objections to the drawings. Claims 7, 12, 28, 33, and 44 have been amended, claims 11 and 32 have been cancelled without prejudice or disclaimer, and claims 1-10, 12-31, and 33-45 are pending and under consideration. No new matter is presented in this Amendment.

REJECTIONS UNDER 35 U.S.C. §112:

Claims 11, 12, 32 and 33 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 has been cancelled and the recited features of claim 11 have been substantially incorporated into claim 7. However, in order to overcome the rejection of original claim 11 under 35 U.S.C. §112, second paragraph of original claim 11, claim 7 (which incorporates substantially the same features recited by original claim 11) has been amended to recite an interleaver which "puts a soft output of the second soft decoder in a portion space of non-decoded data" and "performs interleaving of the data." It is respectfully submitted that "the portion of non-decoded data" recited by claim 7 now has a structural relationship and connection with other structural elements in claim 7.

In the rejection of claim 12 under 35 U.S.C. §112, second paragraph, the Examiner argues that claim 12 recites "keeps a space of non-decoded data of the second soft-decoded data empty" and that "a space of non-decoded data" is not a structural element and hence has no structural relationship or connection to other structural elements in claims 7 and 12. In response to this rejection, claim 12 has been amended to recite an interleaver which "reserves keeps a portion space of non-decoded data of the second soft-decoded data emptyfor the first soft-decoded data to be inserted into" and "performs interleaving of the data." It is respectfully submitted that "the portion of non-decoded data" recited by claim 12 now has a structural relationship and connection with other structural elements in claim 12, and that the rejection of claim 12 should be withdrawn for at least this reason.

Claim 32 has been has been cancelled and the recited features of claim 32 have been

substantially incorporated into claim 28. Furthermore, claims 28 and 33 have been amended in substantially similar ways as claims 7 and 12 have been amended, respectively.

Accordingly, it is respectfully submitted that the rejections of claims 11, 12, 32 and 33 under 35 U.S.C. §112, second paragraph should be withdrawn for these reasons.

REJECTIONS UNDER 35 U.S.C. §101:

Claim 44 is rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter.

In the rejection of claim 44, the Examiner argues that claim 44 recites a "computer readable medium," paragraph [0042] in the Applicant's specification teaches that a carrier wave is a "computer readable medium," carrier waves do not fall into one of the statutory categories of invention, and that claim 44 is directed to non-statutory subject matter for this reason. In response to this rejection, paragraph [0042] has been amended to remove this carrier wave language. Accordingly, it is respectfully submitted that the rejection of claim 44 under 35 U.S.C. §101 should be withdrawn for at least this reason.

REJECTIONS UNDER 35 U.S.C. §103:

Claims 7-10, 28-31 and 44 are rejected under 35 U.S.C. §103(a) as being unpatentable over Figure 1 and Background of Invention in Burd et al. (U.S. Patent 6,965,652) in view of Zhang; Vicki Ping et al. (U.S. Patent 6,233,709). To establish a *prima facie* case of obviousness under 35 U.S.C. §103, the examiner must provide evidence which as a whole shows that the legal determination sought to be proved (i.e., the reference teachings establish a *prima facie* case of obviousness) is more probable than not. MPEP 2142. All claim limitations must be considered in judging the patentability of that claim against the prior art. MPEP 2143.03.

Claim 7

It is respectfully submitted that the Examiner has not established a *prima facie* case of obviousness for claim 7. Claim 7 has been amended to recite: "an interleaver which, according to the additional information, performs a hard-decision for successfully decoded data to restore original data..." Support for this amendment is found, for example, in FIG. 2 and paragraph [0036] of the instant application.

Zhang does <u>not</u> teach or suggest this recited limitation of claim 7. Instead, Zhang discloses decision circuitry 118 which performs a hard-decision and is disposed <u>outside</u> the decoder circuitry 134, as shown in FIG. 1 of Zhang. Zhang teaches that the decision circuitry 118, <u>not</u> the interleavers 106 and 108 included within the decoder circuitry 134, make the hard decision on a decoding output. Col. 4, lines 35-39. Thus, Zhang does not disclose "an interleaver which, according to the additional information, performs a hard-decision for successfully decoded data to restore original data," as recited by claim 7. Furthermore, the interleavers 512 and 514 shown in FIG. 1 of Burd also fail to teach or suggest this recited limitation of claim 7.

Accordingly, the rejection of claim 7 should be withdrawn for at least these reasons.

Claims 8-10

Claims 8-10 depend on claim 7. Accordingly, it is respectfully submitted that the rejections of claims 8-10 should be withdrawn for at least the same reasons as the rejection of claim 7 should be withdrawn.

Claims 28-31

Claim 28 has been amended to recite the additional operation of "according to the additional information performing a hard-decision to successfully decode the data to restore original data, putting a soft output of the second soft decoder in a portion of non-decoded data, interleaving the data, and feeding back the interleaved data to perform the first soft decoding, wherein the first soft decoding is performed repeatedly." As mentioned above with respect to claim 7, Zhang discloses decision circuitry 118 which performs a hard-decision and is disposed <u>outside</u> the decoder circuitry 134, as shown in FIG. 1 of Zhang. Zhang teaches that the decision circuitry 118, <u>not</u> the interleavers 106 and 108 included within the decoder circuitry 134, make the hard decision on a decoding output. Col. 4, lines 35-39. Since the decision circuitry 118 makes a hard-decision after the interleavers 106 and 108 interleaver data, Zhang does not disclose "...<u>performing a hard-decision</u> to successfully decode the data to restore original data, putting a soft output of the second soft decoder in a portion of non-decoded data, <u>interleaving the data</u>, and feeding back the interleaved data to perform the first soft decoding, wherein the first soft decoding is performed repeatedly," as recited by claim 28. Accordingly, it is respectfully submitted that the rejection of claim 28 should be withdrawn for at least these reasons.

Claims 29-31 depend on claim 28. Accordingly, it is respectfully submitted that the

rejections of claims 29-31 should be withdrawn for at least the same reasons as the rejection of claim 7 should be withdrawn.

Claim 44

Claim 44 has been amended to recite the additional operation of "according to the additional information <u>performing a hard-decision</u> to successfully decode the data to restore original data, putting a soft output of the second soft decoding in a portion of non-decoded data, <u>interleaving the data</u>, and feeding back the interleaved data to the first soft decoder, wherein the first soft decoding is performed repeatedly." For reasons which are substantially similar to those mentioned above with respect to claim 28, it is respectfully submitted that Zhang does not disclose at least this recited operation of claim 44.

Accordingly, it is respectfully submitted that the rejection of claim 44 should be withdrawn for at least this reason.

Claims 12 and 33

Claim 12 recites "an interleaver which, according to the additional information, performs a hard-decision for successfully decoded data of the second soft-decoded data to restore original data, reserves a portion of non-decoded data of the second soft-decoded data for the first soft-decoded data to be inserted into, performs interleaving of the data, and outputs the interleaved data." For reasons which are substantially similar to those mentioned above with respect to claim 7, it is respectfully submitted that Zhang does not disclose at least this recited feature of claim 12.

Claim 33 recites: "according to the additional information, performing a hard-decision to successfully decode the data of the second soft-decoded data to restore original data, reserving a portion of non-decoded data of the second soft-decoded data for the first soft-decoded data to be inserted into, interleaving the data, and outputting the interleaved data." For reasons which are substantially similar to those mentioned above with respect to claim 28, it is respectfully submitted that Zhang does not disclose at least this recited operation of claim 33.

Based on the foregoing, this rejection is respectfully requested to be withdrawn.

CONCLUSION:

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

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